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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/606,636	06/25/2003	Michael A. Rothman	42P16428	5116
7590 R. Alan Burnett BLAKELY, SOKOLOFF, TAYLOR & ZAFMAN LLP Seventh Floor 12400 Wilshire Boulevard Los Angeles, CA 90025-1026			EXAMINER FORD, GRANT M	
			ART UNIT 2141	PAPER NUMBER
			MAIL DATE 07/25/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/606,636	ROTHMAN ET AL.	
	Examiner	Art Unit	
	Grant Ford	2141	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 May 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3-15 and 27-30 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3-15 and 27-30 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>5-18-2007</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 5-18-2007 have been fully considered but they are not persuasive. Applicant argued in substance that –

(A) Prior art fails to disclose computing platforms attempting to access a shared resource.

(B) Prior art fails to sending a resource access request to a second computing platform or accessing the shared resource via the second computing platform.

(C) There is no reason to combine the prior art of Abbondanzio with the prior art of Chilton.

2. **As to point (A)**, Applicant argued that the prior art of Chilton fails to disclose computing platforms attempting to access a shared resource. Chilton discloses an ICDA storage cluster which provides virtual volume storage access where all cluster volumes appear to reside on the ICDA to which the host is attached (Para. 0011). Each ICDA of the cluster stores a portion of the volumes which constitute the storage capacity available to the host (Para. 0024). Accordingly, the prior art of Chilton discloses a shared resource as the shared resource is external storage accessible to a host which is distributed among a plurality of ICDAs.

Art Unit: 2141

3. **As to point (B)**, Applicant argued that the prior art of Chilton fails to disclose sending a resource access request to a second computing platform or accessing the shared resource via the second computing platform. However, Chilton teaches sending a resource access request to a second computing platform to access a shared resource via the second computing platform at paragraphs 0010 and 0036.

4. **As to point (C)**, Applicant argued that there is no motivation to combine the prior art of Abbondanzio with the prior art of Chilton. Applicant began with the assertion that Chilton is not directed to a distributed computing environment. The Microsoft Computer Dictionary, Fourth Edition defines distributed system as "A noncentralized network consisting of numerous computers that can communicate with one another and that appear to users as parts of a single, large, accessible "storehouse" of shared hardware, software, and data". The ICDA's of Chilton are computers by definition, which are used together to be seen as a single storage accessible to a host (see point (A) above). As such, the prior art of Chilton does disclose a distributed computing environment.

Next, Applicant asserted that the Examiner provided no reason for combination of the prior art of Chilton and Abbondanzio. As cited by the Examiner in the Office Action dated 2-21-2007, and quoted by Applicant in response dated 5-18-2007, it would have been obvious to incorporate the use of blade servers in distributed computing systems. In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention

Art Unit: 2141

where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, one of ordinary skill in the art would have been motivated to do so for the purpose of permitting hot-swappable expansion of a server system (Abbondanzio, Col 1 lines 33-50). Further, the prior art of Chilton discloses a dynamic ICDA storage system which allows for expansion of storage volumes by the addition of other ICDA units (Para. 0011, 0043). One of ordinary skill in the art would appreciate the benefits of a hot-swappable expansion as taught by the prior art of Abbondanzio so as to allow for real-time upgrading of storage volumes.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1,3-4, and 10-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chilton (US 2002/0124134) in view of Abbondanzio et al. (6,968,414) hereinafter referred to as Abbondanzio.

a. As per claim 1, Chilton discloses method for sharing resources across a plurality of computing platforms, comprising:

receiving a resource access request to access a shared resource at a first computing platform (Para. 0036);

determining a second computing platform via which the shared resource may be accessed (Para. 0036);

sending the resource access request to the second computing platform (Para. 0036);

accessing the shared resource via the second computing platform (Para. 0036). However, Chilton fails to explicitly teach the use of blade servers.

Abbondanzio teaches the use of blade servers in a blade server environment (Col 2 lines 3-26). It would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate the use of blade servers in distributed computing systems. One of ordinary skill in the art would have been motivated to do so for the purpose of permitting hot-swappable expansion of a server system (Col 1 lines 33-50).

b. As per claim 3, Chilton discloses wherein the method is performed in a manner that is transparent to operation systems running on the plurality of computing platforms (Para. 0038).

c. As per claim 4, Chilton discloses wherein the method is facilitated by firmware running on each of the plurality of computing platforms (Para. 0027).

d. As per claim 10, Chilton discloses maintaining global resource mapping data identifying which resources are accessible via which computing platforms (Para. 0035-0036); and

employing the global resource mapping data to determine which computing platform to use to access the shared resource (Para. 0035-0036, 0046).

e. As per claim 11, Chilton discloses wherein a local copy of the global resource mapping data is maintained on each of the plurality of computing platforms (Para. 0035-0036, 0046).

f. As per claim 12, Chilton discloses wherein the global resource mapping data is maintained by a central global resource manager (Para. 0032).

g. As per claim 13, Chilton discloses a method comprising:
configuring the plurality of storage devices as a virtual storage volume (Para. 0034-0036);

maintaining a global resource map that maps I/O blocks defined for the virtual storage volume to corresponding storage devices that actually host the I/O blocks (Para. 0034-0036);

receiving a data access request identifying an I/O block from which data are to be accessed via the virtual storage volume (Para. 0036);

identifying a computing platform via which a target storage device that actually hosts the I/O block may be accessed through the use of the global resource map (Para. 0035-0036);

routing the data access request to the computing platform that is identified (Para. 0036); and

accessing the I/O block on the target storage device via the computing platform that is identified (Para. 0036). However, Chilton fails to explicitly teach the use of blade servers.

Abbondanzio teaches the use of blade servers in a blade server environment (Col 2 lines 3-26). It would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate the use of blade servers in distributed computing systems. One of ordinary skill in the art would have been motivated to do so for the purpose of permitting hot-swappable expansion of a server system (Col 1 lines 33-50).

h. As per claim 14, Chilton discloses configuring the plurality of storage devices as at least one RAID virtual storage volume (Para. 0041);

maintaining RAID configuration mapping information that maps I/O blocks defined for said at least one RAID virtual storage volume to corresponding storage devices that actually host the I/O blocks (Para. 0041); and

employing the RAID configuration mapping information to access appropriate storage devices in response to read and write access requests (Para. 0041).

i. As per claim 15, Chilton discloses wherein the RAID virtual storage volume is configured in accordance with the RAID-1 standard (Para. 0041). The

Examiner notes that Chilton functions to operate in accordance with the RAID standard. As RAID-1 is merely a design choice within the RAID standard, Chilton functions to operate in accordance with RAID-1.

7. Claims 5-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chilton and Abbondanzio further in view of Hemphill et al. (5,696,895), hereinafter referred to as Hemphill.

a. As per claim 5, Chilton discloses the invention substantially as claimed above. However, Chilton fails to explicitly teach wherein the resource access request is sent via an OOB communication channel.

Hemphill teaches wherein the resource access request is sent to the second computing platform via an out-of-band (OOB) communication channel (Figure 1 element 150). It would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate the use of an OOB communication channel with distributed server systems. One of ordinary skill in the art would have been motivated to do so for the purpose of providing monitoring and failed server recovery capabilities (Col 3 lines 31-48).

b. As per claim 6, Chilton discloses the invention substantially as claimed above. However, Chilton fails to explicitly teach wherein the resource access request is sent via an OOB communication channel.

Hemphill teaches wherein the OOB communication channel comprises one of a system management bus, an Ethernet-based network, or a serial communication link (Figure 1 element 150). It would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate the use of a serial OOB communication channel with distributed server systems. One of ordinary skill in the art would have been motivated to do so for the purpose of providing monitoring and failed server recovery capabilities (Col 3 lines 31-48).

c. As per claim 7, Chilton discloses wherein the target resource comprises a storage device (Abstract, Para. 0022).

d. As per claim 8, Chilton discloses wherein the resource access request comprises a storage device write request (Para. 0010, 0026, 0036) and sending data corresponding to the storage device write request (Para. 0026, 0036). However, Chilton fails to explicitly teach wherein the resource access request is sent via an OOB communication channel.

Hemphill teaches wherein the resource access request is sent to the second computing platform via an out-of-band (OOB) communication channel (Figure 1 element 150). It would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate the use of an OOB communication channel with distributed server systems. One of ordinary skill in the art would have been motivated to do so for the purpose of providing monitoring and failed server recovery capabilities (Col 3 lines 31-48).

e. As per claim 9, Chilton discloses wherein the resource access request comprises a storage device read request (Para. 0010,0026,0036) and the method further comprises:

retrieving data corresponding to the read request from the shared resource (Para. 0036); and

sending the data that are retrieved back to the first computing platform (Para. 0036). However, Chilton fails to explicitly teach wherein the resource access request is sent via an OOB communication channel.

Hemphill teaches wherein the resource access request is sent to the second computing platform via an out-of-band (OOB) communication channel (Figure 1 element 150). It would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate the use of an OOB communication channel with distributed server systems. One of ordinary skill in the art would have been motivated to do so for the purpose of providing monitoring and failed server recovery capabilities (Col 3 lines 31-48).

8. Claims 27-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chilton and Abbondanzio in view of Hemphill.

a. As per claim 27, Chilton discloses receiving a resource access request from an operating system running on a requesting server to access a shared resource hosted by at least one of the plurality of servers (Para. 0036);

determining a target resource host from among the plurality of servers that host a target resource that may service the resource access request (Para. 0036);

sending the resource access request to the target resource host (Para. 0036); and

accessing the target resource via the target resource host to service the resource access request (Para. 0036). However, Chilton fails to explicitly teach the use of an OOB channel or the use of blade servers.

Abbondanzio teaches a chassis including a plurality of slots in which respective server blades may be inserted including an interface plane having a plurality of for mating with connectors on inserted server blades providing communication paths between the plurality of connectors (Figure 3, Col 2 lines 3-26); and a plurality of server blades including a processor and firmware to perform operations (Figure 3, Col 1 lines 33-50). It would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate the use of blade servers in distributed computing systems. One of ordinary skill in the art would have been motivated to do so for the purpose of permitting hot-swappable expansion of a server system (Col 1 lines 33-50).

Hemphill teaches the use of an out-of-band (OOB) communication channel (Figure 1 element 150). It would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate the use of an OOB communication channel with distributed server systems. One of ordinary skill in the art would have been motivated to do so for the purpose of providing monitoring and failed server recovery capabilities (Col 3 lines 31-48).

b. As per claim 28, Chilton discloses wherein the operations are performed in a manner that is transparent to operating systems which are run on the plurality of server blades (Para. 0038).

c. As per claim 29, Hemphill teaches the use of an out-of-band (OOB) communication channel (Figure 1 element 150). It would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate the use of an OOB communication channel with distributed server systems. One of ordinary skill in the art would have been motivated to do so for the purpose of providing monitoring and failed server recovery capabilities (Col 3 lines 31-48).

d. As per claim 30, Chilton teaches a hidden execution mode (Para. 0036), as operations between ICDA units occur on a separate network from which requests are received. However, Chilton fails to explicitly disclose the use of an OOB communication channel.

Hemphill teaches the use of an out-of-band (OOB) communication channel (Figure 1 element 150). It would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate the use of an OOB communication channel with distributed server systems. One of ordinary skill in the art would have been motivated to do so for the purpose of providing monitoring and failed server recovery capabilities (Col 3 lines 31-48).

Conclusion

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Grant Ford whose telephone number is (571)272-8630. The examiner can normally be reached on 8-5:30 Mon-Thurs alternating Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rupal Dharra can be reached on (571)272-3880. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2141

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

gmf

A handwritten signature in black ink, appearing to read "Andrew Caldwell". The signature is fluid and cursive, with the first name "Andrew" and last name "Caldwell" clearly distinguishable.

ANDREW CALDWELL
SUPERVISORY PATENT EXAMINER